

**AMENDMENTS TO THE CLAIMS**

*Please amend the Claims as follows:*

Claims 1-25 (previously cancelled)

**26. (Original)** A computer-based method to version a node range and locate a versioned node range in a storage architecture managing node ranges, said computer-based method implemented in computer readable program code stored in computer memory, said computer-based method comprising the steps of:

- a. receiving a node modification request for a node range from a database system;
- b. versioning said node range by copying, to a storage, a node range to which said node modification request is to be made and labeling said copied node range with an identifier;
- c. locating said labeled node range via said identifier and a hash on said node range; and
- d. outputting said located labeled node range.

**27. (Currently Amended)** The computer-based method of ~~claim 25~~claim 26, wherein said identifier is any of the following: a timestamp or a LSN.

**28. (Currently Amended)** The computer-based method of ~~claim 25~~claim 26, wherein said storage is a transient storage.

**29. (Currently Amended)** The computer-based method of ~~claim 25~~claim 26, wherein said node modification request is any of the following: a node insertion request, a node update request, or a node deletion request.

**30. (Currently Amended)** The computer-based method of ~~claim 25~~claim 26, wherein said method is implemented across a network.

**31. (Original)** The computer-based method of claim 30, wherein said network is any of the following: a local area network, a wide area network, or the Internet.

**32. (Currently Amended)** The computer-based method of ~~claim 25~~ claim 26, wherein said node ranges are associated with hierarchical node data that is derived from any of: a structured document, a computer network, or a directory file system.

**33. (Original)** The computer-based method of claim 32, wherein said structured document is an XML document.

**34. (Original)** A computer-based method to version a node range and to locate a versioned node range in a storage architecture managing node ranges via a node id range index, said each node assigned a node id value and a set of nodes forming a node range, each entry in said node id range index pointing to a node range and its range identifier, RID, said computer-based method implemented in computer readable program code stored in computer memory, said method comprising the steps of:

- a. receiving a node modification request for a range;
- b. versioning said range associated with said node modification request by shadowing nodes in said range to a Version Hash Table based on RID and assigning a time identifier to copies of said range;
- c. locating a node in said shadowed range via said time identifier and RIDs; and
- d. outputting said located node range.

**35. (Original)** The computer-based method of claim 34, wherein said time identifier is any of the following: timestamp or LSN.

**36. (Original)** The computer-based method of claim 34, wherein new readers, after a modification, access current nodes through a new RID.

**37. (Original)** The computer-based method of claim 34, wherein previous readers access old nodes via the same RID and hashing the same RID to locate the shadowed copy in said Version Hash Table.

**38. (Original)** The computer-based method of claim 34, wherein when modifications cause nodes in a range to be moved to a new RID, previous readers are redirected from the new RID to an old RID via a Redirection Hash Table.

**39. (Original)** The computer-based method of claim 34, wherein when modifications cause nodes in a range to be moved to a new RID, previous readers are redirected from the new RID to an old RID via an index that describes where old versions are in said Version Hash Table.

**40. (Original)** The computer-based method of claim 34, wherein said shadowed nodes are copied to a transient storage.

**41. (Original)** The computer-based method of claim 34, wherein said method is implemented across a network.

**42. (Original)** The computer-based method of claim 41, wherein said network is any of the following: a local area network, a wide area network, or the Internet.

**43. (Original)** The computer-based method of claim 34, wherein, for range deletions, the range being deleted is moved to reserved RID RIDFF.

**44. (Original)** The computer-based method of claim 43, wherein a reader hashes a Redirection Hash Table on RIDFF to find a correct Version Hash Table entry.

**45. (Original)** The computer-based method of claim 34, wherein said node ranges are associated with hierarchical node data that is derived from any of: a structured document, a computer network, or a directory file system.

**46. (Original)** The computer-based method of claim 45, wherein said structured document is an XML document.

**47. (Original)** The computer-based method of claim 34, wherein said node modification request is any of the following: a node insertion request, a node update request, or a node deletion request.

**48. (Original)** An article of manufacture comprising computer readable program code implementing a method to version a node range and to locate said versioned node in a storage architecture that manages node ranges via a node id range index, said each node assigned a node id value and a set of nodes forming a node range, each entry in said node id range index pointing to a node range and its range identifier, RID, said method comprising:

- a. computer readable program code identifying a node modification request for a range;
- b. computer readable program code versioning said range associated with said node modification request by shadowing nodes in said range to a Version Hash Table based on RID and assigning a time identifier to copies of said range;
- c. computer readable program code locating a node in said shadowed range via said time identifier and RIDs; and

d. computer readable program code outputting said located node range.

**49. (Original)** An article of manufacture comprising computer readable program code implementing a method to version a node range and to locate a versioned node range in a storage architecture that manages node ranges, said method comprising:

a. computer readable program code identifying a request for node modification from a database system;

b. computer readable program code copying, to a storage, a node range to which said node modification request is to be made;

c. computer readable program code labeling said copied node range with an identifier;  
and

d. computer readable program code locating said labeled node range via said identifier and a hash on said node range; and

e. computer readable program code outputting said located labeled node range.